

How Many Analyzers Are Needed in an OBD-Only System?



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How Many Exhaust Analyzers are Needed?



- Assumption: Test-Only and Gold Shield Stations Must Have Tailpipe Analyzers.
- Geographical Convenience: Assume Adequate Capacity Within ZIP, Adjacent Area, or Within Five Miles. Some Exceptions (e.g. Healdsburg and Windsor; Malibu and Pacific Palisades).
- Short Wait Times: Test-Only Capacity is 1,728 tailpipe tests per month; Gold Shield is 559 tailpipe tests per month.



The “Swiss Cheese” Problem

- What If Existing Stations Drop Out of the Program Because They Can’t Afford Tailpipe Equipment?
- What If Stations That Buy BAR 2010 Tailpipe Equipment Drop Out Later in the Decade?
- The Currently Convenient Network Begins to Look Like Swiss Cheese, With Big Gaps in Coverage.

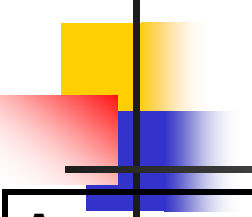


Tailpipe Tests at an Average Station

Year	%	Tests
2010	32.39	377
2011	27.83	324
2012	23.33	272
2013	19.6	228
2014	15.82	184
2015	12.5	145

Year	%	Tests
2016	9.67	112
2017	7.48	87
2018	5.73	67
2019	4.21	49
2020	3.16	36
Total		1880

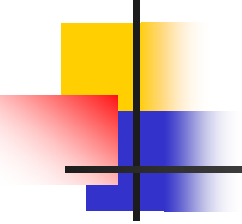
Summary of ZIP Analysis for 2010



Area	Stations	ZIPs	Adequate	No TO or GS	Inadequate	Marginal	Shortfall
So. Cal	3,868	547	315	140	62	30	158,592
Other Enh.	1,124	169	60	56	41	12	113,327
Bay Area	1,692	209	121	42	36	10	64,259
Other Basic	667	108	12	56	38	2	192,325
C of O	83	34	14	18	1	1	7,212
Statewide	7,434	1,067	522	312	178	55	535,628*

*5.58% of total tests.

Map Analysis, Number of ZIPs and Tests



	Initially Deficient	Initial Shortfall	Actually Deficient	Shortfall
LA	81	51,311	25	10,111
BAY Area	69	64,259	24	31,961

Note: Map Analysis Won't Help Much In Other Basic or Change of Ownership Areas, But Will Cut Deficits in Other Enhanced Areas.



Results

- Analysis Indicates We Will Need About 3,000 Tailpipe Analyzers.
- Savings Will Be Approximately \$81 Million (conservatively). This Includes:
 - Reducing the Need for Analyzers from 7,500 to 3,000.
 - Savings on Interest Payments for Five Years at 8%, for 4,500 Analyzers.
 - \$50/Month Maintenance Contracts for 10 Years.
- Further Savings If the State Purchases Tailpipe Analyzers That are Needed. (Low bid contract, paying up front through certificate fees rather than borrowing).



Options for Further Cuts in Deficits

- Liberalize Assumptions.
- Delay Implementation of BAR 2010.
- Temporarily, Use OBD-Only Tests for 1996 and 1997 Model Year Vehicles.
- Eliminate Tailpipe Test in Change of Ownership Areas.

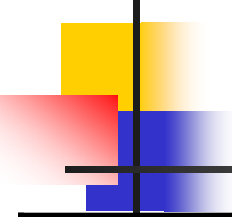
Can 7,500 Stations Afford Tailpipe Equipment?



- Shifts in the Market Share Between 1998 and 2007
 - Average Test Volume at Test and Repair Stations Dropped 41% from 1,065 to 630.
 - Within the 630 Average, Many Stations Have Extremely Low Averages.
 - The 10% Smallest Stations do 0.7% of All Tests; the 50% Smallest do 12.39% of All Tests.
- Do We Need Them?
- Will the System Look Like Swiss Cheese in 2010?

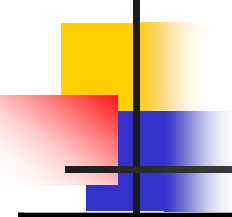
Market Share by Station Type

1998



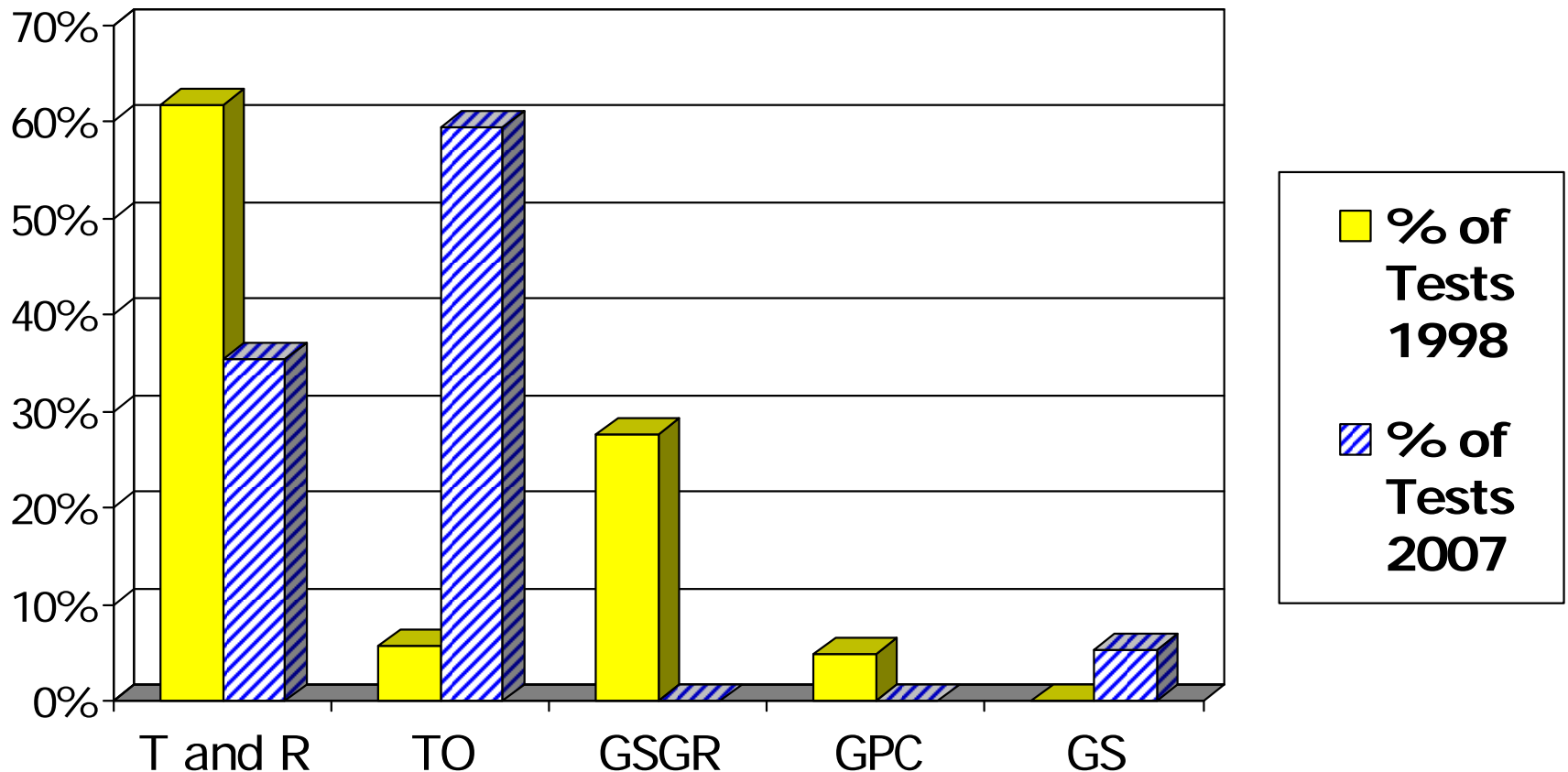
	T and R	TO	GSGR	GPC	G S
Test/ Station	1,065	2,259	1,538	541	
Stations	4,830	207	1,500	763	
Tests	5,142,707	467,644	2,306,909	412,741	
% of Tests	61.74%	5.61%	27.69%	4.95%	

Market Share by Station Type 2007



	T and R	TO	GS GR	GPC	GS
Test/ Station	630	2,607			751
Stations	4,822	1,959			595
Tests	3,038,277	5,107,009			446,565
% of Tests	35.36%	59.44%			5.20%

Market Share by Station Type, 1998 and 2007

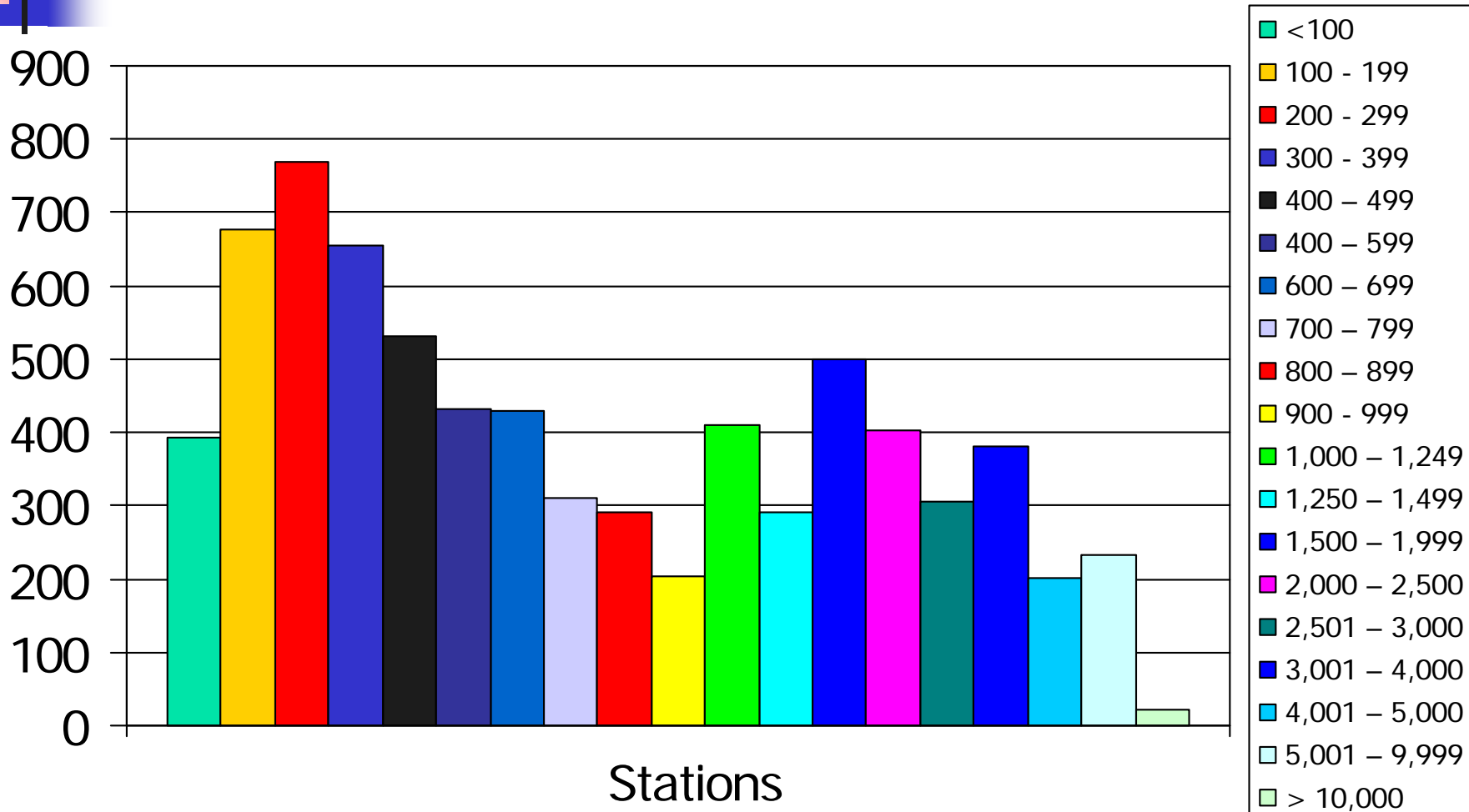


Distribution of Tests Per Station

Tests/Station	Stations
<100	392
100 - 199	678
200 - 299	769
300 - 399	654
400 - 499	531
400 - 599	432
600 - 699	430
700 - 799	311
800 - 899	292
900 - 999	204

Tests/Station	Stations
1,000 - 1,249	411
1,250 - 1,499	292
1,500 - 1,999	500
2,001 - 2,500	403
2,501 - 3,000	305
3,001 - 4,000	381
4,001 - 5,000	202
5,001 - 9,999	233
> 10,000	22

Distribution of Tests per Station

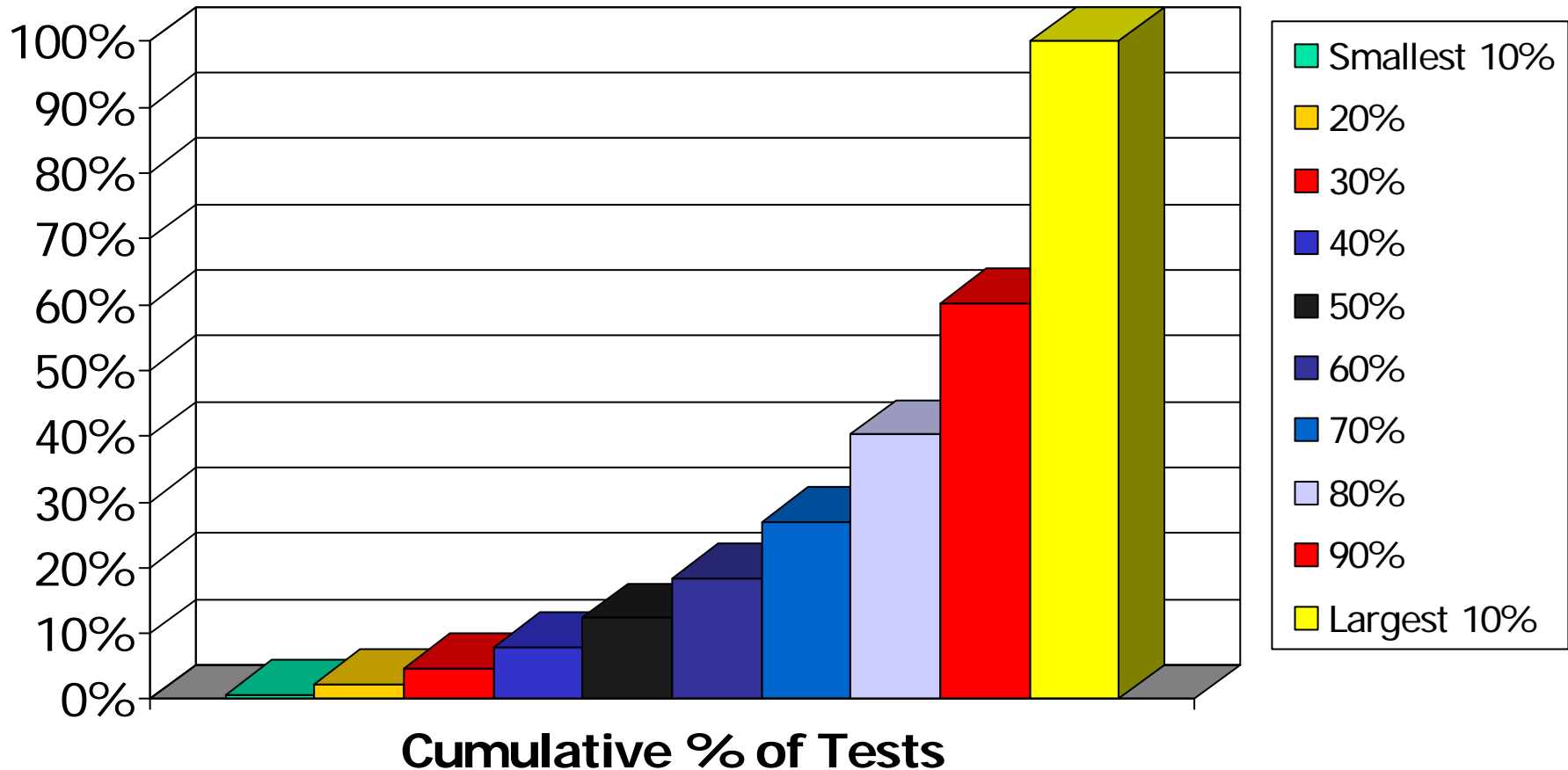




Percentage of Tests by Station Size Decile

% of Stations	Cumulative % of Tests	% Test-Only
Smallest 10%	0.7%	3.8%
20%	2.31%	3.4%
30%	4.68%	3.7%
40%	7.94%	4.9%
50%	12.39%	5.3%
60%	18.44%	8.8%
70%	27.0%	21.1%
80%	40.2%	47%
90%	60.2%	74.6%
Largest 10%	100%	89%

Percentage of Tests by Station Size Decile





Future Work

- Recommend That BAR Conduct a Separate ZIP Analysis.
- Evaluate – Is Contracting Better Than Licensing? Should Potential Contracts Include Penalties for Poor Performance?
- What Kinds of Subsidies are Needed for Contracting? How Do We Establish These?
- Would the State Control Price Charged to Consumers? How Would We Do This?
- Should the Change of Ownership Area Program be Updated?